SUBJECT: How to Operate the OKIDATA Microline Printers with the Osborne I Using Supercalc
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OKIDATA has prepared this Users Tip to assist you in operating the Microline printers with the Osborne I using Supercalc wordprocessing software. Please use this as a guide only, as you may wish to use other printer features than those explained in this document.

Ordinarily, the Supercalc set-up function allows the user to send printer control codes directly to the printer. However, the control codes required for many of the Microline functions cannot be sent directly to the printer (condensed mode, for example). This is because certain characters are not available on the Osborne I keyboard. To compensate for this, the numeric keys are also function keys. An article in the April/May issue of "Portable Companion" written by Don Ross and Gary Cuevas entitled, "Reprogramming the Function Keys Using DDT", explains how to use the DDT program. This Users Tip is an extension of that article and has been written in a format for configuring the function keys with the Microline printers.

HOW TO OPERATE THE MICROLINE PRINTERS WITH AN OSBORNE I USING SUPERCALC:

Tip #1 Documentation to assist in connecting the Osborne I to the Microline printer

Tip #2 Programming the Function Keys

Tip #3 How to test the Supercalc disk

Tip #4 Function keys reference chart

Tip #5 Sample Supercalc Worksheets

#1. INTERFACING THE OSBORNE I WITH THE MICROLINE PRINTER

If you have not connected your Osborne I computer to your OKIDATA Microline printer as yet, the following documents may be of interest to you:

The Users Tip #3073 explains how to interface the Microline 92, 93 and 84 Step 2 with the Osborne I. Both parallel and serial connections are described. In addition, the Tip contains information on using WordStar wordprocessing with the system. Users Tip #3022 explains how to connect the serial interface for the ML82A and 83A to the Osborne I, and they, too, can be parallel interfaces.

#2. PROGRAMMING THE FUNCTION KEYS

After a backup disk has been created of your Supercalc disk, put the original disk in a safe place. Never use your master disk for anything other than making additional backup disks. Your Osborne I manual explains how to make a backup disk.

Steps for Making a New Supercalc Disk

1. Place the backup Supercalc disk in drive B and the backup CP/M utility disk in drive A. Press the RESET switch and boot the CP/M. The system will prompt with an "A>" when the CP/M is active.

2. Type: PIP B:=PIP.*<CR>

   NOTE: <CR> represents depress the CARRIAGE RETURN key

   PIP.COM from disk A to disk B. This file will be needed later.

   Now type: DIR B:

   A directory appears like this:

```
DIR
B:  SC        COM   :   SC        OVL
B:  SC        HLP   :   INSTALLS  COM
B:  BALANCE   CAL   :   BARRIER   CAL
B:  BRKEVN    CAL   :   PIP       COM
B:  AUTOST    COM   :   XDIR      COM
```

   Note that the PIP.COM is now on the disk.

3. Remove the Supercalc backup disk from drive B.

   Insert a blank, unformatted disk in drive B.

   Type: COPY<CR>

   The program will ask you if you wish to copy or format the disk. Select to format the disk by typing F when the Osborne displays:

   Press C to Copy, F to Format or Return to exit

The Osborne will then require that you select which drive you wish to use. Select drive B. You will then be asked to the type of disk to format (single or double density). Select S or D depending on what type of disk you have.
When the formatting is completed, exit back to the CP/M by depressing the <CR> key. The system will give the prompt "A>".

4. The system is in the CP/M command mode.

   Type: DDT<CR>

   This command loads the debug program. The Osborne will respond with: -

   Type: D000<CR>

   The screen will display a list of hexadecimal numbers:

   ```
   0000 C3 03 E5 ............

           or

   0000 C3 03 E1 ............
   ```

   If you have EF at location 0002, you have BIOS 1.3. If you have E1 at location 0002, you have BIOS 1.4. You don't need to know what BIOS is, just which one you have.

   Now type: ^C

   NOTE: ^ represents the CTRL key. So for this last command you would hold the CTRL key down and depress the letter C.

   The Osborne will enter the CP/M command mode again, represented by the displaying of A>.

5. BIOS 1.3 changes.

   Use Step 5 only if you have BIOS 1.3. For BIOS 1.4, use STEP 6.

   Type: MOVCPM 60 *

   This is the move CP/M command. The Osborne displays:

   ```
   Constructing 60k CP/M vers 2.2
   Ready for "SYSGEN" or "Save 39 CPM60.60M"
   ```

   Type: SAVE 39 B:CPM60.COM<CR>

This saves the CP/M to the new disk.

Type: DDT B:CPM60.COM<CR>

This loads the CPM from the new disk (drive B) into the Osborne memory and runs the DDT program. The Osborne responds with this display:

```
DDT Vers 2.2
Next PC
2800 100
```

Type the underlined characters:

```
-S2012<CR>                FUNCTION KEY
- 2012 30 1E<CR>               0
- 2013 31 1C<CR>               1
- 2014 32 1D<CR>               2
- 2015 33 36<CR>               3
- 2016 34 38<CR>               4
- 2017 35 31<CR>               5
- 2018 36 30<CR>               6
- 2019 37 1B<CR>               7
- 201A 38 1F<CR>               8
- 201B 39 .<CR>
-^C
```

The last command given is a CTRL C which allows you to exit the DDT.

Now run "SYSGEN" by typing: SYSGEN<CR>

The Osborne displays:

```
Operating System Generation Program
      Osborne Revision 1.5
```

Next the Osborne will prompt:

"Source Drive (A or B)"   Type: <CR>

This reads the system from memory.

"Destination Drive (A or B)"   Type: B

"Destination Drive (A or B)"   Type: <CR>

This exits the SYSGEN program.

Proceed to STEP 7.

6. BIOS 1.4 Changes

Use STEP 6 only if you have BIOS 1.4.

Type:

```
MOVCPM 59 *<CR>
```

This moves the CP/M and causes the Osborne to display:

```
Constructing 59k CP/M vers 2.2
Ready for "SYSGEN" or "Save 39 CPM 59.60M"
```

Now type:

```
SAVE 39 B:CPM59.COM<CR>
```

This saves CPM to the new disk

Next type:

```
DDT B:CPM59.COM<CR>
```

This loads CPM from the new disk (drive B) into the Osborne memory and runs the DDT program. Osborne responds with this display:

```
DDT vers 2.2
Next PC
2800 100
```

Type the characters underlined:

```
-S2025       <CR>          FUNCTION KEY
- 2025 30 1E<CR>                0
- 2026 31 1C<CR>                1
- 2027 32 1D<CR>                2
- 2028 33 36<CR>                3
- 2029 34 38<CR>                4
- 202A 35 31<CR>                5
- 202B 36 30<CR>                6
- 202C 37 1B<CR>                7
- 202D 38 1F<CR>                8
- 202E 39 .<CR>
- ^C
```

The CTRL C command exits the DDT.

Type:

```
SYSGEN<CR>
```

The screen displays:

```
Operating System Generation Program
     Osborne Revision 1.5
```

The screen will now prompt:

"Source Drive (A or B)" Type:<CR>

This reads the CP/M from memory.

"Destination Drive (A or B)" Type: B

This puts the CP/M on drive B.

"Destination Drive (A or B)" Type: <CR>

This exits the SYSGEN program.

Proceed to STEP 7.

7. Remove the CP/M utility disk from drive A. Insert the Supercalc backup disk with the PIP.COM file generated in STEP 2.

   Type: PIP B:=A:*.*<CR>

   This command copies all files from drive A to drive B.

   After all the files have been copied, the CP/M prompt will be displayed: A>

8. Remove the disk from drive A and place the disk from drive B in drive A. This disk is your new working copy of Supercalc.

9. Press the reset button and boot the new Supercalc disk.

3. TESTING THE SUPERCALC DISK

Your disk should boot and display the Supercalc worksheet once you use the <CR> to start the program. Load the example "Balance" which should be on your disk. Please refer to your Osborne manual for further instructions on how to use Supercalc.

Type	Screen Displays
	B,C,D,E,F,G,I,L,M,O,P,Q,R,S,T,U,W,X,Z
L	Load,
Balance<CR>	Loads Balance Asks for A(ll) or P(art) Select A for all
A	Loads file

Once the file has been loaded, you may use the new function keys to control the printer.

Printing normal spread sheets (Example 1)

Type	Screen displays
/O	Command line displayed Output command D issued Select D for display
D	Display command issued, Enter coordinates
A1:G25<CR>	Device displayed Select printer
P	Spread sheet printed (Example 1)

When done, A<CR> will return you to the spread sheet.

Printing Condensed Spread Sheets (Example 2)

This example shows how to print in condensed mode. This example is also printed on the ML92 at 17 CPI. On the ML82A, the printout will be slightly different because the ML82A condensed mode is 16.5 CPI.

Type	Screen displays
/O	Command line displayed Output command D issued Select D for display
D	Display command issued, Enter coordinates
A1:N25<CR>	Device displayed Select setup
S	The setup menu is displayed Select printer control: L - change page length (now 66 lines) Length = 0 for continuous form W - change page width (now 132 characters) S - manual setup codes P - print report Select S for manual setup
S	System appears to hang, but the Osborne is just waiting for control codes. You may select L or W and change them before selecting S.

^2<CR>	Send a CTRL 2 using the 2 key on the key pad to the right and the CONTROL key.
P	Spread sheet is printed.

Notice that only up to Col L was printed.

That's because there is not enough room to print all the data. A <CR> finishes the data under the data already printed. You could have deselected the printer, hit the form feed and reselected the printer. Then the new data following would be printed on a second sheet of paper, which could be placed next to the first for easy reading.

If you have a wide carriage machine (Microline models 83A, 93 or 84 Step 2), you could print the whole sheet across one page. Before doing that though, you must change paper width to 224 columns. Once the setup menu is displayed, you select W instead of S. Then type: 224<CR>

The setup menu will be displayed again, but the page width is now 224 columns.

Select S and continue as shown.

NOTE: Your printer will stay in condensed mode until you turn it off or send the 10 CPI command. The 10 CPI command is a ^O function key and must be set from the printer setup routine.

NOTE: If you're in condensed mode, and the characters do not print across the entire page, ensure that the line width is set for 132 in the setup mode. If the width is set for 80 characters, the full 8 inches will not print in condensed mode.

Correspondence Mode (Example 3)

If you have a Microline 92, 93 or 84 Step 2, you may print in the Correspondence Quality (CQ) mode. However you cannot print in CQ and Condensed modes simultaneously. If you try, the printer will ignore the CQ request and print in normal condensed mode.

Type	Screen displays
O	Command line displayed Output command issued Select D for display
D	Display command issued Enter coordinates
A1:G25<CR>	Device displayed Select setup

S	The setup menu is displayed Select printer control: L = change page length (now 66 lines) Length = 0 for continuous form W = change page width (now 32 characters) S = manual setup codes P = print report Select S for manual setup
^7^5<CR>	Hold the CONTROL key down and type the numbers 7 then 5. However if the spreadsheet from the previous example was in condensed mode, type the following.
^0^7^5<CR>	Now you are out of condensed mode
P	Printer should print in CQ mode

4. FUNCTION KEYS REFERENCE CHART

Location BIOS 1.3	Location BIOS 1.4	Function Key	Value Installed	Function
2012	2025	^0	1E	10 CPI
2013	2026	^1	1C	12 CPI
2014	2027	^2	1D	CONDENSED
2015	2028	^3	36	6 LPI*
2016	2029	^4	38	8 LPI*
2017	202A	^5	31	CQ*
2018	202B	^6	30	DP*
2019	202C	^7	1B	ESC code
201A	202D	^8	1F	WIDE PRINT
201B	202E	^9	N/A	

*Must be preceeded by the ^7 function key.

This table contains the information and the operation for each function key. Remember a function key is a control key and the numeric key 0 through 9 on the right key pad.

Function Key	Function	Printers ML82A/83A	ML92/93	ML84 Step 2
^0	10 CPI	Yes	Yes	Yes
^1	12 CPI	No	Yes	Yes
^2	Condensed	16.5 CPI	17 CPI	17 CPI
^0^8	5 CPI	Yes	Yes	Yes
^1^8	6 CPI	No	Yes	Yes
^2^8	Condensed/Wide	8.3 CPI	8.5 CPI	8.5 CPI
^7^3	6 LPI	Yes	Yes	Yes
^7^4	8 LPI	Yes	Yes	Yes
^7^5	CQ Mode	No	Yes	Yes
^7^6	DP Mode	No	Yes	Yes

No = not supported by printer
Yes = supported by printer

```
  |         A          ||    B    ||    C    ||    D    ||    E    ||    F    ||    G    |
 1|This is a Sample SuperCalc Worksheet
 2|
 3|                          Jan       Feb       Mar       Apr       May       Jun
 4|ASSETS
 5|Acct.s Receivable      1000.00   1050.00   1102.50   1157.63   1215.51   1276.2
 6|Cash                    300.00    500.00    525.00    551.25    578.81    607.7
 7|Unsold Goods            250.00    262.50     65.63    289.41    303.58    319.6
 8|______________________________________________________________________________
 9|Total Assets           1550.00   1812.50   1693.13   1998.28   2098.20   2203.11
10|
11|LIABILITIES
12|Acct.s Payable         1000.00    916.67    840.28    770.25    706.07    647.23
13|Storage Costs            50.00     50.00     50.00     50.00     50.00     50.00
14|Labor                   100.00    105.00    110.25    115.76    121.55    127.63
15|Materials                50.00     52.50     55.13     57.88     60.78     63.81
16|______________________________________________________________________________
17|Total Liabilities      1200.00   1124.17   1055.65    993.90    938.39    888.67
18|
19|NIBT                    350.00    688.33    637.47   1004.38   1159.80   1314.43
20|Dep. Allowance          100.00    100.00    100.00    100.00    100.00    100.00
21|Taxable Income          250.00    588.33    537.47    904.38   1059.80   1214.43
22|______________________________________________________________________________
23|Taxes(@30%)              75.00    176.50    161.24    271.31    317.94    364.33
24|==============================================================================
25|Net Income              275.00    511.83    476.23    733.07    841.86    950.10
```

EXAMPLE 1

```
  |          A           ||    B    ||    C    ||    D    ||    E    ||    F    ||    G    ||    H    ||    I    ||    J    ||    K    ||    L    |
 1|This is a Sample SuperCalc Worksheet
 2|
 3|                             Jan       Feb       Mar       Apr       May       Jun       Jul       Aug       Sep       Oct       Nov
 4|ASSETS
 5|Acct.s Receivable       1000.00   1050.00   1102.50   1157.63   1215.51   1276.28   1340.10   1407.10   1477.46   1551.33   1628.89
 6|Cash                     300.00    500.00    525.00    551.25    578.81    607.75    638.14    670.05    703.55    738.73    775.66
 7|Unsold Goods             250.00    262.50     65.63    289.41    303.88    319.07    335.02    351.78    369.36    387.83    407.22
 8|____________________________________________________________________________________________________________________________________
 9|Total Assets            1550.00   1812.50   1693.13   1998.28   2098.20   2203.11   2313.26   2428.92   2550.37   2677.89   2811.78
10|
11|LIABILITIES
12|Acct.s Payable          1000.00    916.67    840.28    770.25    706.07    647.23    593.29    543.85    498.53    456.99    418.90
13|Storage Costs             50.00     50.00     50.00     50.00     50.00     50.00     50.00     50.00     50.00     50.00     50.00
14|Labor                    100.00    105.00    110.25    115.76    121.55    127.63    134.01    140.71    147.75    155.13    162.89
15|Materials                 50.00     52.50     55.13     57.88     60.78     63.81     67.00     70.36     73.87     77.57     81.44
16|____________________________________________________________________________________________________________________________________
17|Total Liabilities       1200.00   1124.17   1055.65    993.90    938.39    888.67    844.31    804.92    770.15    739.69    713.24
18|
19|NIBT                     350.00    688.33    637.47   1004.38   1159.80   1314.43   1468.95   1624.01   1780.22   1938.20   2098.54
20|Dep. Allowance           100.00    100.00    100.00    100.00    100.00    100.00    100.00    100.00    100.00    100.00    100.00
21|Taxable Income           250.00    588.33    537.47    904.38   1059.80   1214.43   1368.95   1524.01   1680.22   1838.20   1998.54
22|____________________________________________________________________________________________________________________________________
23|Taxes(@30%)               75.00    176.50    161.24    271.31    317.94    364.33    410.69    457.20    504.07    551.46    599.56
24|====================================================================================================================================
25|Net Income               275.00    511.83    476.23    733.07    841.86    950.10   1058.27   1166.80   1276.15   1386.74   1498.98

  |    M    ||    N    |
 1|
 2|
 3|      Dec     Total
 4|
 5|  1710.34  15917.13
 6|   814.45   7403.39
 7|   427.58   3769.28
 8|__________________
 9|  2952.37  27089.80
10|
11|
12|   384.00   7776.05
13|    50.00    600.00
14|   171.03   1591.71
15|    85.52    795.86
16|__________________
17|   690.55  10763.62
18|
19|  2261.83  16326.18
20|   100.00   1200.00
21|  2161.83  15126.18
22|__________________
23|   648.55   4537.85
24|==================
25|  1613.28  11788.33
```

EXAMPLE 2

```
  |         A        ||   B    ||   C    ||   D    ||   E    ||   F    ||   G   |
 1|This is a Sample SuperCalc Worksheet
 2|
 3|                       Jan       Feb       Mar       Apr       May        Ju
 4|ASSETS
 5|Acct.s Receivable  1000.00   1050.00   1102.50   1157.63   1215.51   1276.28
 6|Cash                300.00    500.00    525.00    551.25    578.81    607.75
 7|Unsold Goods        250.00    262.50     65.63    289.41    303.88    319.07
 8|____________________________________________________________________________
 9|Total Assets       1550.00   1812.50   1693.13   1998.28   2098.20   2203.11
10|
11|LIABILITIES
12|Acct.s Payable     1000.00    916.67    840.28    770.25    706.07    647.23
13|Storage Costs        50.00     50.00     50.00     50.00     50.00     50.00
14|Labor               100.00    105.00    110.25    115.76    121.55    127.63
15|Materials            50.00     52.50     55.13     57.88     60.78     63.81
16|____________________________________________________________________________
17|Total Liabilities  1200.00   1124.17   1055.65    993.90    938.39    888.67
18|
19|NIBT                350.00    688.33    637.47   1004.38   1159.80   1314.43
20|Dep. Allowance      100.00    100.00    100.00    100.00    100.00    100.00
21|Taxable Income      250.00    588.33    537.47    904.38   1059.80   1214.43
22|____________________________________________________________________________
23|Taxes(@30%)          75.00    176.50    161.24    271.31    317.94    364.33
24|============================================================================
25|Net Income          275.00    511.83    476.23    733.07    841.86    950.10
```

EXAMPLE 3